

Serial No. 10/075,733
Amdt. Dated September 18, 2003
Reply to Office Action of March 18, 2003

REMARKS/ARGUMENTS

Claims 1-47 were pending in this application.

Claims 27-41, 45 and 46 are canceled, without prejudice, as non-elected claims.

With the amendments herein, claim 1 has been amended and claim 24 withdrawn.

Therefore, claims 1-26, 42-44 and 47 are now pending.

Claim 1 was amended to include the limitation of packing density inside the module of less than 10%. This limitation is supported in the specification at paragraph 0035, lines 16-20. No new matter is added.

Election/Restrictions

The claims have been restricted into two groups: Group I includes claims 1-26, 42-44 and 47 as drawn to the hollow fiber membrane module; and Group II includes claims 27-41, 45 and 46 as drawn to the method of making hollow fiber modules.

Through a telephone discussion with the Examiner on February 24, 2003, applicants' representative made a provisional election, with traverse, to prosecute the invention of group I, claims 1-26, 42-44 and 47. Applicants hereby affirm the election to prosecute Group I, without prejudice, and reserve the right to file one or more continuation applications for the non-elected subject matter.

Claim Rejections Under 35 U.S.C. § 102

Claims 1-4, 6, 10-12, 19, 21, 25 and 43 are rejected under 35 U.S.C. §102(e) as being clearly anticipated by Zha et al (U.S. Patent No. 6,524,481 B2). Applicants traverse this claim rejection on the following basis.

Applicants submit that Zha's teaching is significantly different from that of the claimed invention. Zha defines its packing density in col. 2, lines 17-20, which provides for a significantly lower value than that of the claimed invention. For example, based on applicants' calculation, a packing density of 9% in Zha corresponds to a packing density

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of about 20% on the basis of the definition of packing density in the present invention. The packing density of Zha is consistent with those of known in the art, as described in the present application (see, paragraphs 0008, 0012 and 0030 in the present application). Based on Zha's calculation relative to that of the present invention, a packing density of 5% according to Zha corresponds to about 11% in the present invention. Because the present invention provides for a preferred claim packing density of less than 5% (according to the definition of the present invention), the present amended claims of a packing density of less than 10% clearly fall outside the parameters of the Zha teachings. Therefore, applicants' packing density of less than 5% is not anticipated by Zha.

Accordingly, applicants request that the examiner reconsider and withdraw the rejection to claims 1-4, 6, 10-12, 19, 21, 25 and 43 under 35 U.S.C. §102(e) in view of Zha.

Claim Rejections Under 35 U.S.C. § 103

Alternatively, claim 5 is rejected under 35 U.S.C. §103(a) as being unpatentable over Zha. Applicants traverse this claim rejection on the following basis.

In direct contrast to applicants' invention, Zha provides a membrane configuration with a high packing density. For example, Zha clearly made this point in col. 2, lines 22-30 providing for the desirability that the packing density be as high as possible to reduce the cost of making membrane modules. It is also clear that Zha teaches away from the applicants' invention, where the present invention may provide for "hollow fiber [that] can be held together among one another inside the arrangement by connecting structures, for example, by elements running radially around the bundles or they can be arranged loosely next to one another..." (emphasis added).

Further, Zha also teaches away from the "relatively low packing density" of the present invention. As discussed above, Zha discloses a hollow fiber bundle arranged in

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a relatively high packing density whereas, in contrast, the applicants herein disclose a loosely bound arrangement.

Accordingly, applicants request that the examiner reconsider and withdraw the rejection to claim 5 under 35 U.S.C. §103 in view of Zha.

Claims 12-16 and 20-24 are rejected under 35 U.S.C. §103(a) as being unpatentable over Zha in view of U.S. Patent No. 5,282,984 ("Young"). Applicants traverse this claim rejection on the following basis.

Young does not solve the deficiencies of Zha to render the present claims unpatentable. In the office action, Young was stated to teach the segmentation elements and the housing to be impervious. There is no teaching or suggestion in Young to complement Zha in teaching a less than maximum packing density membrane configuration. In that sense, the combination of Zha and Young teaches away from the applicants' invention.

Accordingly, applicants request that the examiner reconsider and withdraw the rejection to claims 12-16 and 20-24 under 35 U.S.C. §103 in view of Zha and Young.

Claims 7-9, 26 and 42 are rejected under 35 U.S.C. §103(a) as being unpatentable over Zha in view of EP 1008358 A2. Applicants traverse this claim rejection on the following basis.

EP 1008358 A2 does not solve the deficiencies of Zha to render the present claims unpatentable. In the office action, EP 1008358 A2 has been stated to teach polymeric (polysulfones, cellulosic, etc) hollow fiber membranes. There is no teaching or suggestion in EP 1008358 A2 to complement Zha in teaching a less than maximum packing density membrane configuration. In that sense, the combination of Zha and EP 1008358 A2 teaches away from the applicants' invention.

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Accordingly, applicants request that the examiner reconsider and withdraw the rejection to claims 7-9, 26 and 42 under 35 U.S.C. §103 in view of Zha and EP 1008358 A2.

Claims 17, 18 and 44 are rejected under 35 U.S.C. §103(a) as being unpatentable over Zha in view of Young and further in view of U.S. Patent No. 4,689,225 (Smoot). Applicants traverse this claim rejection on the following basis.

Smoot does not solve the deficiencies of Zha in view of Young to render the present claims unpatentable. In the office action, Smoot was stated to teach the arrangement of hollow fiber bundles on a previous sheet and then wrapping on the outside surface of a perforated housing. However, there is no teaching or suggestion in Smoot to complement Zha in view of Young in teaching a less than maximum packing density membrane configuration. In that sense, the combination of Zha in view of Young and further in view of Smoot *teaches away* from the applicants' invention.

Accordingly, applicants request that the examiner reconsider and withdraw the rejection to claims 17, 18 and 44 under 35 U.S.C. §103 over Zha in view of Young and further in view of Smoot.

Claim 47 rejected under 35 U.S.C. §103(a) as being unpatentable over Zha in view of U.S. Patent No. 6,251,275 (Rikers). Applicants traverse this claim rejection on the following basis.

Rikers does not solve the deficiencies of Zha to render the present claim 47 unpatentable. In the office action, Rikers was stated to teach the use of fibers for different diameters. However, there is no teaching or suggestion in Rikers to complement Zha in teaching a less than maximum packing density membrane configuration. In that sense, the combination of Zha in view of Rikers *teaches away* from the applicants' invention.

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Accordingly, applicants request that the examiner reconsiders and withdraws the rejection to claim 47 under 35 U.S.C. §103 over Zha in view of Rikers.

With the remarks herein, applicants believe that this application is in condition for allowance, and respectfully request a notice of allowance at an early date. Should the Examiner believe a discussion is helpful to expedite prosecution and put this application in a form for allowance, applicants invite the Examiner to contact the undersigned at the telephone exchange below.

Other than the fee associated with the petition to extend the term for responding to the Office Action, no further fee is believed to be due. But if any fee is in fact be due, the Commissioner is authorized to charge the amount of any fee to Deposit Account No. 08-2525.

Respectfully submitted,



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